(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 15 July 2004 (15.07.2004)

(10) International Publication Number WO 2004/058079 A2

(51) International Patent Classification7:

A61B 17/08

(21) International Application Number:

PCT/US2003/040318

(22) International Filing Date:

16 December 2003 (16.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/434,344

17 December 2002 (17.12.2002)

(71) Applicant (for all designated States except US): AP-PLIED MEDICAL RESOURCES CORPORATION [US/US]; 22872 Avenida Empresa, Rancho Santa Margarita, CA 92688 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): HART, Charles, C. [US/US]; 126 Marvin Gardens, Summerville, SC 29483-8949 (US).

(74) Agent: VU, Kenneth, K.; 22872 Avenida Empresa, Rancho Santa Margarita, CA 92688 (US).

(81) Designated States (national): CA, JP, US.

(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

Published:

without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SURGICAL STAPLE-CLIP AND APPLIER

(57) Abstract: A surgical staple-clip including a clip component and a securing member is used in a wide range of surgical procedures. The staple-clip may be introduced to a surgical site in an un-assembled condition through a small port or trocar. An applier for the staple-clip comprising a pair of opposed jaw-like channels is provided to position and apply the clip component and the securing member. The clip component is positioned around a target tissue and is compressed or clamped upon the tissue using only the force required for a specific surgical procedure such as occlusion, ligation or fixation. When the clip component is properly applied, the securing member is urged forward and over the clip component to secure the staple-clip. The clip component may include traction enhancement features such as surface interruptions, bumps, valleys and ridges. With the staple-clip of the invention, the force required to constrict or occlude the tissue is separate from the force required to secure and maintain the staple-clip in position and, as a result, the body tissue is not over-compressed and nourishment to the body tissue is maintained. Other aspects of the invention include thumb actuated clip appliers for use in hand assisted laparoscopy (HAL). In one embodiment, a clip applier includes a handle and a thumb actuated mechanism that is used to slidably release clips onto a body tissue or vessel by sliding the thumb actuated mechanism forward and backward using only one hand. In another aspect of the invention, a two-stage clip is disclosed having a clip component and a staple component for securing the clip after it has been properly positioned.